Date	Time	Class/Set	Lesson No	No. in class	Room
3/5/19	11.30	10 S1	1 of 10	29	2.24

Your targets from weekly training meeting relevant to this lesson (foci)

TS2 / TS5 – Adding support for LAPS and those students finding work more challenging
TS3 – Ensure you are aware of what prior knowledge students have and how it impacts on their learning
TS7 – Developing 1-1 techniques for support and 'pre sanction' action

Background of the class context of your teaching and learning plan and your expectations

New topic. Last covered magnetism in Yr 8 Term 1 – so along time ago – need to remind and refresh so they can recall Set is top level combined science class	Additional Adults:

Relevant Curriculum Statements

12.1 Recall that unlike magnetic poles attract and like magnetic poles repel
12.2 Describe the uses of permanent and temporary magnetic materials including cobalt, steel, iron and nickel
12.3 Explain the difference between permanent and induced magnets

Pre-supposed knowledge / Possible Concepts / Misconceptions / Alternative Ideas

KS3 have learnt about which materials are magnetic, poles attracting and repelling and how a compass works.

Misconceptions might include:

- All metals are attracted to a magnet.
- All silver coloured items are attracted to a magnet.
- All magnets are made of iron.
- Larger magnets are stronger than smaller magnets.
- A magnetic field is a pattern of lines (not a field of force) that surrounds a magnet.
- In a magnet, the magnetic field lines exist only outside the magnet.

Learning points:

Overall: What is magnetism

Bronze: Recall what happens when poles meet

Silver: Define the terms permanent, temporary and induced magnets

Gold: Describe the use of magnets

Time	**Teacher Activity** What are you doing? Additional adults in room?	**Pupil Activity** that are the pupils doing? **Evidence of progress? Refer to Learning Points.**
11.30	Starter Activity True false quiz based on KS3 lessons Include brain graphic and key movie images (dr Strange, Fantastic beasts, Moana, Rogue One) from Yr 8 to demonstrate they can remember other things from 2016. Use as a way to assess what has been remembered – and to address any misconceptions. 1) All metals are attracted to a magnet. 2) Silver is a magnetic material. 3) Iron is a magnetic material. 4) It is possible to turn a magnetic material into a magnet 5) Magnets have three poles 6) The South pole of a compass is attracted to the North pole of the earth 7) Nickel is a magnetic material 8) All silver coloured metals are attracted to magnets 9) The geographic north pole is the magnetic south pole Challenge: How can you test if a substance is magnetic?	Pupils doing starter task Pupils answering starter true and false Pupils attempting challenge question
11.40	**Bronze: Recall what happens when poles meet** What will happen – attract or repel – why? Pair share short discussion Choose a low performing table to confirm rule and top performing table to help if needed. Give 4 examples on worksheet – students write attract or repel Reveal answers - Students to hold up MWB with (honest score) – probe and clarify if needed Challenge: What do you think is meant by the term 'induced magnet'?	Pair discussion (I expect this to be pretty straightforward) Students to complete worksheet – so they have the key concept in Yr 10 book not Yr 8.

11.45	Horse shoe magnet demo. Student to try and pass steel knife through Teacher to use aluminium knife Students to explain 1 slide with all metals listed as Element symbols Students told 3 are magnetic – can they remember which? Write list in Green books and pencil circle the magnetic ones Reveal 3 correct ones and green pen correct Challenge: What might be the difference between a permanent and an induced magnet?	Pick who ever is in a good mood that day Random pick of a low performing student to explain – offer out to help for a positive if needed. Students then to refresh their memories about which metals are magnetic as will be needed for the gold activity
11.50	**Silver: Define the terms permanent, temporary and induced magnets** Bar magnet – paperclip practical (How long a chain can you create?) Questions to think about. What is happening to the paperclips? Are the paperclips magnetic all the time? What metal must the paperclips contain? Support: Which metals are magnetic, Look at the bar magnet image Challenge: What do the magnetic poles on the paperclips look like?	Students to work in pairs and then, once equipment collected have around 5 mins to try to make as long a chain as possible. Students to answer questions in their rough books. Use bounce to get discussion going re science behind the practicals.
	Post practical (MWB) activity to try and think about defining Permanent and Induced magnets. How would you describe a permanent magnet and an induced magnet? Support – The bar magnet is a permanent magnet and the paperclips are the induced magnet	Students to use practical, discussion, English knowledge and support statements to attempt to define permanent and induced magnets
	Green pen activity to match definitions to words Permanent magnet Temporary magnet Induced magnet	Students to match statements in science books to create revision notes

	Challenge: How is magnetism used to store data on computer disks?	
12.05	**Gold: Describe the use of magnets** Pair and share discussion on 1) Where magnets are used in everyday life 2) How the magnetic properties are used Support: Think back to lessons from Yr8. Small images of computer disk, car door lock, headphone, electrical motor, maglev train, doorbell, fridge door, scrap metal crane	Pair and share. Students to use knowledge and support pictures to list where magnets are used on MWB
	Green book – Explain how magnetism can be used in a recycling plant to separate aluminium drink cans from steel food cans. Support: Remind yourself which metals are magnetic Challenge: Why are electro magnets used rather than permanent magnets?	Students to use knowledge of magnetic properties of metals and types of magnetism to explain
12.15	Plenary / Prep (as they have some exam questions) most questions can be answered from lesson and lessons covered in Yr 8 and Yr 9 Wordsearch	

Evidence of Pupil Progress

1) Able to answer random questions
2) Answers on MWB
3) Worksheets
4) Written tasks

Resources needed:

Magnet / knives for demo
Bar magnets and paperclips for practical

Health and Safety issues and Risk Assessment:

N/A

Homework set:

Evaluation (after every lesson**)**

Strengths / Areas for Development

Evidence

Actions for future plans

Reflection (once per week)**….**